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EXAMINER	
ELLIOTT IV, BENJAMIN H	
ART UNIT	PAPER NUMBER
2474	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@slater-matsil.com

Office Action Summary	Application No.	Applicant(s)	
	10/587,228	LIU, ENHUI	
	Examiner	Art Unit	
	BENJAMIN ELLIOTT	2474	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-9,11,13-20 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-9, 11, 13-20, and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 have been examined. Claims 2, 3, 10, 12, and 21 are canceled. Claims 1, 13, and 17-19 have been amended. Claims 1, 4-9, 11, 13-20, and 22 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/07/2010 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claims 1 and 17-19 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 4-9, 11, 13-20, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 18 recite throughout the limitation "a service traffic flow". As an example, Examiner points to Claim 1, lines 4 and 6. Examiner is unsure if the "a service traffic flow" of line 6 is antecedent to "a service traffic flow" of line 9. The same occurs in Claim 18 with regards to lines 4 and 6. Clarification is respectfully requested.

Claims 4-9, 11, 13-16 and 20 are rejected as being dependant upon the rejected base claim 1, and claim 22 is rejected as being dependant upon the rejected base claim 18.

Regarding claims 17-19: The claim limitation "a first performing means for obtaining a service traffic flow identification" uses the phrase "means for" or "step for", but it is modified by some structure, material, or acts recited in the claim. It is unclear whether the recited structure, material, or acts are sufficient for performing the claimed function which would preclude application of 35 U.S.C. 112, sixth paragraph, because the claim is modified by sufficient structure.

If applicant wishes to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant is required to amend the claim so that the phrase "means for" or "step for" is clearly **not** modified by sufficient structure, material, or acts for performing the claimed function.

If applicant does **not** wish to have the claim limitation treated under 35 U.S.C. 112, sixth paragraph, applicant is required to amend the claim so that it will clearly not be a means (or step) plus function limitation (e.g., deleting the phrase "means for" or "step for").

Assuming Applicant intended to invoke 35 U.S.C. 112, sixth paragraph, it is unclear to one of ordinary skill in the art whether the recited structure, material, or acts in the claim are sufficient for performing the claimed function. Since the claims are directed to computer-implemented means plus function subject matter, merely referencing to a general purpose computer with appropriate programming without providing any detailed explanation of the appropriate programming, or simply reciting software without providing some detail about the means to accomplish the function, would not be an adequate disclosure of the corresponding structure to satisfy the requirement of 35 U.S.C. 112, second paragraph, even when one of ordinary skill in the art is capable of writing the software to convert a general purpose computer to a special purpose computer to perform the claimed function.

7. Claims 1 and 17-19 recite the limitation "the corresponding outgoing aggregation path information". There is insufficient antecedent basis for this limitation in the claim.

Claims 4-9, 11, 13-16, and 20 are rejected as being dependent upon a rejected base claim and for further not clarifying the deficiencies in the rejected base claim (claim 1).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1, 4-9, 11, 13-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 7,496,661 B1 to Morford et al. (hereinafter "Morford") in view of United States Patent Application Publication 2004/0215817 A1 to Qing et al. (hereinafter "Qing"), and further in view of United States Patent 7,012,919 to So et al. (hereinafter "So").

Regarding Claim 1, Morford discloses **a method for providing quality of service (QoS) guarantee** (Morford: Abstract), **wherein the method comprises the steps of:**

creating, at an edge router, a service traffic flow classification table (Morford: Col. 8, line 61 through Col. 9, line 31 and Figure 3; traffic management module comprises a traffic classification database, 86, stores traffic classes

associated with data flows (data flows are associated with a "service class". Col. 8, lines 38-43 and Figure 2C; traffic management device comprises the traffic management module. Col. 8, lines 15-19; traffic management device may be implemented into routers in strategic points in a computer network, inherent to an "edge router".);

establishing, at an uplink interface of the edge router, a plurality of label switching paths (Morford: Figure 1 and corresponding description in Col. 3, line 42 through Col. 4, line 13. Also see Col. 6, lines 20-38 for Figure 1 incorporated into an embodiment of the present invention as disclosed by Morford.);

configuring the attributes of the label switching paths (Morford: Col. 3, lines 55-66. (LSPs can be configured for non-real-time and real-time traffic.);

obtaining, at the edge router, service traffic flow information of a service traffic flow from a service control equipment (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.), **the service traffic flow information comprising at least one of flow classification spec** (Morford: Col. 9, lines 45-61), **priority, QoS class, bandwidth requirement** (Morford: Col. 9, lines 33-44; bandwidth utilization on the network through interface), **and path information of the service traffic flow;**

updating dynamically, at the edge router, table entries of the service traffic

flow classification table according to the obtained service traffic flow information (Morford: Col. 12, lines 29-34 and lines 52-58. Traffic classes are automatically created and stored in a database.);

classifying and conditioning the service traffic flows entering into a core network at a downlink interface of the edge router according to the service traffic flow classification table (Morford: Figure 2B and Col. 7, lines 57-59. The traffic management device may be located between the access link and router (of Figure 2B), thus being in the downlink stream. Col. 7, lines 7-12. Traffic management device is configured to monitor and manage data flow based on performance attributes.);

and forwarding the processed service traffic flows by the uplink interface of the edge router according to the attributes of the label switching paths (Morford: Traffic management device adds tags for outbound packets from egress interface of router. Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network device such as a router.), **wherein the step of classifying and conditioning the service traffic flows entering into a core network at a downlink interface of an edge router according to the service traffic flow classification table comprises the steps of**

(a) obtaining, at the edge router, a service traffic flow identification of the service traffic flow entering into the core network (Morford: Col. 11, lines 17-27; services table (of packet processor, 82, of Figure 3) comprises services IDs.

Packet processor analyzes traffic flows against services table to identify a service ID.);

(b) looking up the service traffic flow classification table according to the service traffic flow identification (Morford: Col. 11, lines 36-38; obtaining a traffic class from traffic classification table based on service ID.);

(c) classifying and marking the service traffic flows according to the corresponding priority and QoS class (Morford: Col. 6, lines 62-67 and Col. 7, lines 1-6. The differentiated services network performs relative priority marking and service class marking. Col. 8, lines 5-12; traffic management device operates to mark and tag data flows incoming and outgoing. Col. 9, lines 16-20; traffic policy module (of the traffic management module disposed in the traffic management device) is configured to mark or tag traffic flows for a given service class.).

Although Morford discloses that network administration may influence the traffic flows by assigning classes, Morford does not explicitly disclose *the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the service session changes, or when the service session ends.*

Qing discloses a method for providing QoS in an IP network. Qing discloses **the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the**

service session changes, or when the service session ends (Qing: [0085]. When a service session is successful (consistent with when a service session is initialized), the CM (bearer network resource manager) notifies the edge router. The edge router then creates items corresponding to the traffic stream into an entry to be placed into a traffic stream classification table.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford to allow an edge router to receive changes of service traffic flow as disclosed by Qing. This benefits the method by supplying edge routers with information to transmit packets between one another and allowing each to guarantee QoS through an IP network (Qing: [0018] and [0021]).

Morford and Qing do not explicitly disclose shaping and policing traffic flows or selecting the forwarding mode and path according to aggregation path information.

So discloses a method for selecting a label-switching path from a set of label-switching paths based on the QoS-type (So: Col. 3, line 65 through Col. 4, line 11). The method is carried out in an intelligent and dynamic network resource traffic engineering mechanism (So: Col. 6, lines 18-28) disposed in a router (So: Col. 6, lines 29-33; router and switch are used interchangeably throughout the disclosure. Figures 4A-B are core label switches.). So discloses **(d) shaping and policing the service traffic flows according to the corresponding bandwidth requirement** (So: Col. 12, lines 3-18; scheduler controlling the buffers of the switch enables traffic shaping. Traffic parameters for

shaping and policing include QoS and bandwidth requirements.). So also discloses **(e) selecting the forwarding mode and path of the service traffic flows according to the corresponding outgoing aggregation path information** (So: Col. 6, lines 18-28; LSPs are selected based on QoS and current link or path utilization characteristics. Figure 2B (1st packet) and Col. 7, lines 52-61; The label field designates the path of the flow for packets containing protocol type and source and destination addresses.).

Morford, Qing, and So discloses methods for guaranteeing quality of service in systems utilizing label-switching paths and multiprotocol label-switching technologies. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford and Qing to incorporate shaping and policing traffic along with selecting a path as disclosed by So to provide a means for load balancing (So: Col. 3, lines 56-61) which in turn, reduces delay and network congestion (So: 51-55).

Regarding Claim 4, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the step of obtaining service traffic flow information is: directly obtaining the service traffic flow information from the service control equipment** (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.).

Regarding Claim 5, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the step of obtaining service traffic flow information is: obtaining the service traffic flow information from the service control equipment through a resource control equipment, the resource control equipment distributing route and resource according to Qos requirements of the service traffic flow** (Morford: Col. 3, lines 61-67 and Col. 4, lines 1-3. RSVP is used for the paths with QoS restraints.).

Regarding Claim 6, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the step of establishing a plurality of label switching paths is: configuring the label switching paths statically at the uplink interface of the edge router** (Morford: Col. 9, lines 50-61. Administrator may supply labels to packets for forwarding. Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network device such as a router.).

Regarding Claim 7, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the step of establishing a plurality of label switching paths is: establishing the label switching paths dynamically via constraint- routing label distribution protocol (CR-LDP) or resource reservation protocol-traffic engineering (RSVP-TE) at the uplink interfaces of the edge router (**Morford: Col. 3, lines 61-65. Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated

into a network device such as a router. Col. 4, lines 1-3. RSVP is used for the paths with QoS restraints.).

Regarding Claim 8, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the step of establishing a plurality of label switching paths further comprises the step of: constructing an edge-to-edge label switching path concatenated pipe or a virtual multi- protocol label switching network on the core network by using the label switching paths** (Morford: Col. 4, lines 23-25. The core network is MPLS based.).

Regarding Claim 9, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the step of configuring the attributes of the label switching paths is:**
configuring traffic class (Morford: Col. 7, lines 16-18. Data flows are marked by class.), **priority** (Morford: Col. 6, lines 46-48), **QoS class** (Morford: Col. 6, lines 46-48. QoS may be delay, jitter, or loss.), **bandwidth attribute of the label switching paths by network capacity planning and traffic engineering statistics** (Morford: Col. 6, lines 50-59; So: Col. 3, line 65 through Col. 4, line 11).

Morford, Qing, and So discloses methods for guaranteeing quality of service in systems utilizing label-switching paths and multiprotocol label-switching technologies. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford and Qing to incorporate shaping and policing traffic along with selecting a path as

disclosed by So to provide a means for load balancing (So: Col. 3, lines 56-61) which in turn, reduces delay and network congestion (So: 51-55).

Regarding Claim 11, Morford, in view of Qing, and further in view of So discloses **the method according to claim 10, wherein the step of classifying and conditioning the service traffic flows entering into a core network at a downlink interface of an edge router according to the service traffic flow classification table comprises the steps of:**

obtaining a service traffic flow identification of the service traffic flow entering into the core network (Morford: Col. 11, lines 17-27; services table (of packet processor, 82, of Figure 3) comprises services IDs. Packet processor analyzes traffic flows against services table to identify a service ID.);

looking up the service traffic flow classification table according to the service traffic flow identification (Morford: Col. 11, lines 36-38; obtaining a traffic class from traffic classification table based on service ID.);

classifying and conditioning the service traffic flows entering into the core network according to the corresponding service traffic flow information in the service traffic flow classification table (Morford: Col. 6, lines 62-67 and Col. 7, lines 1-6. The differentiated services network performs relative priority marking and service class marking. Col. 8, lines 5-12; traffic management device operates to mark and tag data flows incoming and outgoing. Col. 9, lines 16-20; traffic policy module (of the traffic management module disposed in the traffic

management device) is configured to mark or tag traffic flows for a given service class.).

Regarding Claim 13, Morford, in view of Qing, and further in view of So discloses **the method according to claim 12, wherein the forwarding mode of the service traffic flow comprises:**
best-effort delivery in accordance with network protocols (Morford: Col. 4, lines 45-50. MPLS may have a QoS class for best-effort traffic.);
delivery through the corresponding label switching paths of this class of traffic (Morford: Col. 7, lines 23-26. A traffic flow may be downgraded (to a lower class of service).).

Regarding Claim 14, Morford, in view of Qing, and further in view of So discloses **the method according to claim 13, wherein the step of forwarding the processed service traffic flow by an uplink interface of the edge router according to the attributes of the label switching paths comprises:**
steering the service traffic flow to the egress router of the core network via network protocols when the best-effort delivery in accordance with network protocols is selected as the forwarding mode of the service traffic flow (Morford: Col. 8, lines 3-5. Network may not be differentiated service domain.);
steering the service traffic flow to the egress router of the core network through the label switching path concatenated pipe or the virtual multi-protocol label switching network when the delivery through the corresponding label switching path of this class of traffic is selected as the

forwarding mode of the service traffic flow (Morford: Col. 4, lines 23-25. The core network is MPLS based.).

Regarding Claim 15, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the method further comprises the step of:**

modifying the service traffic flow classification table according to change of the service traffic flow when the service traffic flow is changed (Qing: [0085]. When a service session is successful (consistent with when a service session is initialized), the CM (bearer network resource manager) notifies the edge router. The edge router then creates items corresponding to the traffic stream into an entry to be placed into a traffic stream classification table.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford to allow an edge router to receive changes of service traffic flow as disclosed by Qing. This benefits the method by supplying edge routers with information to transmit packets between one another and allowing each to guarantee QoS through an IP network (Qing: [0018] and [0021]).

Regarding Claim 16, Morford, in view of Qing, and further in view of So discloses **the method according to claim 15, wherein the step of modifying the service traffic flow classification table when the service traffic flow is changed comprises:**

obtaining and adding the service traffic flow information of a service session into the service traffic flow classification table when the session is

established (Qing: [0085]. When a service session is successful (consistent with when a service session is initialized), the CM (bearer network resource manager) notifies the edge router. The edge router then creates items corresponding to the traffic stream into an entry to be placed into a traffic stream classification table.); **canceling the service traffic flow information of the service session from the service traffic flow classification table when the service session is ended** (Qing: [0085]. The edge router removes the entry from the traffic stream classification table when the subscriber terminates the session.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford to allow an edge router to receive changes of service traffic flow as disclosed by Qing. This benefits the method by supplying edge routers with information to transmit packets between one another and allowing each to guarantee QoS through an IP network (Qing: [0018] and [0021]).

Regarding Claim 17, Morford discloses **an apparatus for providing quality of service (QoS) guarantee** (Morford: Abstract), **wherein the apparatus comprises:**
a service traffic flow information obtaining means (Morford: Col. 7, lines 7-9. This is consistent with the traffic management device.), **for creating a service traffic flow classification table** (Morford: Col. 11, lines 9-14. Service identification tables are created to identify a particular service type based on the data flow.), **obtaining service traffic flow information of a service traffic flow**

from a service control equipment notifying of changes of the service traffic flow (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.), **and updating dynamically table entries of the service traffic flow classification table according to the obtained service traffic flow information** (Morford: Col. 12, lines 29-34 and lines 52-58. Traffic classes are automatically created and stored in a database.), **wherein the service traffic flow information comprises at least one of flow classification spec** (Morford: Col. 9, lines 45-61), **priority, QoS class, bandwidth requirement** (Morford: Col. 9, lines 33-44; bandwidth utilization on the network through interface), **and path information of the service traffic flow;**

a label switching path establishing means, for establishing a plurality of label switching paths (Morford: Figure 1);

a label switching path configuring means, for configuring the attributes of the label switching paths (Morford: Col. 4, lines 23-25. the core network is MPLS-based and uses a QoS mechanism such as DiffServ.);

a first performing means, for obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags

required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.) **looking up the service traffic flow classification table according to the service traffic flow identification** (Morford: Col. 11, lines 36-38; obtaining a traffic class from traffic classification table based on service ID.) **classifying and conditioning service traffic flows entering a core network according to the service traffic flow classification table** (Morford: Figure 2B and Col. 7, lines 57-59. The traffic management device may be located between the access link and router (of Figure 2B), thus being in the downlink stream. Col. 7, lines 7-12. Traffic management device is configured to monitor and manage data flow based on performance attributes.);

and a second performing means, for forwarding the processed service traffic flows according to the attributes of the label switching paths (Morford: Traffic management device adds tags for outbound packets from egress interface of router. Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network device such as a router.).

Although Morford discloses that network administration may influence the traffic flows by assigning classes, Morford does not explicitly disclose *the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is*

initialized, when a service traffic flow of the service session changes, or when the service session ends.

Qing discloses a method for providing QoS in an IP network. Qing discloses **the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the service session changes, or when the service session ends** (Qing: [0085]. When a service session is successful (consistent with when a service session is initialized), the CM (bearer network resource manager) notifies the edge router. The edge router then creates items corresponding to the traffic stream into an entry to be placed into a traffic stream classification table.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford to allow an edge router to receive changes of service traffic flow as disclosed by Qing. This benefits the method by supplying edge routers with information to transmit packets between one another and allowing each to guarantee QoS through an IP network (Qing: [0018] and [0021]).

Morford and Qing do not explicitly disclose shaping and policing traffic flows or selecting the forwarding mode and path according to aggregation path information.

So discloses a method for selecting a label-switching path from a set of label-switching paths based on the QoS-type (So: Col. 3, line 65 through Col. 4, line 11). The method is carried out in an intelligent and dynamic network

resource traffic engineering mechanism (So: Col. 6, lines 18-28) disposed in a router (So: Col. 6, lines 29-33; router and switch are used interchangeably throughout the disclosure. Figures 4A-B are core label switches.). So discloses **shaping and policing the service traffic flows according to the corresponding bandwidth requirement** (So: Col. 12, lines 3-18; scheduler controlling the buffers of the switch enables traffic shaping. Traffic parameters for shaping and policing include QoS and bandwidth requirements.). So also discloses **selecting the forwarding mode and path of the service traffic flows according to the corresponding outgoing aggregation path information** (So: Col. 6, lines 18-28; LSPs are selected based on QoS and current link or path utilization characteristics. Figure 2B (1st packet) and Col. 7, lines 52-61; The label field designates the path of the flow for packets containing protocol type and source and destination addresses.).

Morford, Qing, and So discloses methods for guaranteeing quality of service in systems utilizing label-switching paths and multiprotocol label-switching technologies. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford and Qing to incorporate shaping and policing traffic along with selecting a path as disclosed by So to provide a means for load balancing (So: Col. 3, lines 56-61) which in turn, reduces delay and network congestion (So: 51-55).

Regarding Claim 18, Morford discloses **an edge router for providing quality of service (QoS) guarantee** (Morford: Abstract; Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network

device such as a router.), **comprises a configuration management interface** (Morford: Col. 7, lines 7-9. This is consistent with the traffic management device.), **wherein the edge router further comprises:**

a service traffic flow information obtaining means (Morford: Col. 7, lines 7-9. This is consistent with the traffic management device.), **for creating a service traffic flow classification table** (Morford: Col. 11, lines 9-14. Service identification tables are created to identify a particular service type based on the data flow.), **obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow** (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.), **and updating dynamically table entries of the service traffic flow classification table according to the obtained service traffic flow information** (Morford: Col. 12, lines 29-34 and lines 52-58. Traffic classes are automatically created and stored in a database.), **wherein the service traffic flow information comprises at least one of flow classification spec** (Morford: Col. 9, lines 45-61), **priority, QoS class, bandwidth requirement** (Morford: Col. 9, lines 33-44; bandwidth utilization on the network through interface), **and path information of the service traffic flow;**

a label switching path establishing means, for establishing a plurality of

label switching paths (Morford: Figure 1);

a label switching path configuring means, for configuring the attributes of the label switching paths (Morford: Col. 4, lines 23-25. the core network is MPLS-based and uses a QoS mechanism such as DiffServ.);

a first performing means, for obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.) **looking up the service traffic flow classification table according to the service traffic flow identification** (Morford: Col. 11, lines 36-38; obtaining a traffic class from traffic classification table based on service ID.) **classifying and conditioning service traffic flows entering a core network according to the service traffic flow classification table** (Morford: Figure 2B and Col. 7, lines 57-59. The traffic management device may be located between the access link and router (of Figure 2B), thus being in the downlink stream. Col. 7, lines 7-12. Traffic management device is configured to monitor and manage data flow based on performance attributes.);

and a second performing means, for forwarding the processed service traffic flows according to the attributes of the label switching paths (Morford: Traffic management device adds tags for outbound packets from

egress interface of router. Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network device such as a router.).

Although Morford discloses that network administration may influence the traffic flows by assigning classes, Morford does not explicitly disclose *the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the service session changes, or when the service session ends.*

Qing discloses a method for providing QoS in an IP network. Qing discloses **the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the service session changes, or when the service session ends** (Qing: [0085]. When a service session is successful (consistent with when a service session is initialized), the CM (bearer network resource manager) notifies the edge router. The edge router then creates items corresponding to the traffic stream into an entry to be placed into a traffic stream classification table.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford to allow an edge router to receive changes of service traffic flow as disclosed by Qing. This benefits the method by supplying edge routers with information to transmit

packets between one another and allowing each to guarantee QoS through an IP network (Qing: [0018] and [0021]).

Morford and Qing do not explicitly disclose shaping and policing traffic flows or selecting the forwarding mode and path according to aggregation path information.

So discloses a method for selecting a label-switching path from a set of label-switching paths based on the QoS-type (So: Col. 3, line 65 through Col. 4, line 11). The method is carried out in an intelligent and dynamic network resource traffic engineering mechanism (So: Col. 6, lines 18-28) disposed in a router (So: Col. 6, lines 29-33; router and switch are used interchangeably throughout the disclosure. Figures 4A-B are core label switches.). So discloses **shaping and policing the service traffic flows according to the corresponding bandwidth requirement** (So: Col. 12, lines 3-18; scheduler controlling the buffers of the switch enables traffic shaping. Traffic parameters for shaping and policing include QoS and bandwidth requirements.). So also discloses **selecting the forwarding mode and path of the service traffic flows according to the corresponding outgoing aggregation path information** (So: Col. 6, lines 18-28; LSPs are selected based on QoS and current link or path utilization characteristics. Figure 2B (1st packet) and Col. 7, lines 52-61; The label field designates the path of the flow for packets containing protocol type and source and destination addresses.).

Morford, Qing, and So discloses methods for guaranteeing quality of service in systems utilizing label-switching paths and multiprotocol label-

switching technologies. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford and Qing to incorporate shaping and policing traffic along with selecting a path as disclosed by So to provide a means for load balancing (So: Col. 3, lines 56-61) which in turn, reduces delay and network congestion (So: 51-55).

Regarding Claim 19, Morford discloses **a system for providing quality of service (QoS) guarantee** (Morford: Abstract), **comprises a service control equipment, a resource control equipment, and an edge router** (Morford: Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network device such as a router.), **wherein the edge router comprises:**

a service traffic flow information obtaining means (Morford: Col. 7, lines 7-9. This is consistent with the traffic management device.), **for creating a service traffic flow classification table** (Morford: Col. 11, lines 9-14. Service identification tables are created to identify a particular service type based on the data flow.), **obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow** (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.), **and**

updating dynamically table entries of the service traffic flow classification table according to the obtained service traffic flow information (Morford: Col. 12, lines 29-34 and lines 52-58. Traffic classes are automatically created and stored in a database.), **wherein the service traffic flow information comprises at least one of flow classification spec** (Morford: Col. 9, lines 45-61)**, priority, QoS class, bandwidth requirement** (Morford: Col. 9, lines 33-44; bandwidth utilization on the network through interface)**, and path information of the service traffic flow;**

a label switching path establishing means, for establishing a plurality of label switching paths (Morford: Figure 1);

a label switching path configuring means, for configuring the attributes of the label switching paths (Morford: Col. 4, lines 23-25. the core network is MPLS-based and uses a QoS mechanism such as DiffServ.);

a first performing means, for obtaining service traffic flow information of a service traffic flow from a service control equipment notifying of changes of the service traffic flow (Morford: Col. 9, lines 45-61. "Service traffic flow information" is consistent with service labels, service codes, or service tags required to designate packets for receiving a specific class for network service. The traffic management device receives this information and marks data flows associated with that traffic class for a higher class if the performance falls below a specific threshold.) **looking up the service traffic flow classification table according to the service traffic flow identification** (Morford: Col. 11, lines 36-38; obtaining a traffic class from traffic classification table based on service ID.)

classifying and conditioning service traffic flows entering a core network according to the service traffic flow classification table (Morford: Figure 2B and Col. 7, lines 57-59. The traffic management device may be located between the access link and router (of Figure 2B), thus being in the downlink stream. Col. 7, lines 7-12. Traffic management device is configured to monitor and manage data flow based on performance attributes.);

and a second performing means, for forwarding the processed service traffic flows according to the attributes of the label switching paths (Morford: Traffic management device adds tags for outbound packets from egress interface of router. Col. 8, lines 15-19; The functionality of the traffic management device may be incorporated into a network device such as a router.).

Although Morford discloses that network administration may influence the traffic flows by assigning classes, Morford does not explicitly disclose *the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the service session changes, or when the service session ends.*

Qing discloses a method for providing QoS in an IP network. Qing discloses **the service control equipment notifying the changes of the service traffic flow to the edge router in one or more of the following occasions: when a service session is initialized, when a service traffic flow of the service session changes, or when the service session ends** (Qing: [0085].

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford to allow an edge router to receive changes of service traffic flow as disclosed by Qing. This benefits the method by supplying edge routers with information to transmit packets between one another and allowing each to guarantee QoS through an IP network (Qing: [0018] and [0021]).

Morford and Qing do not explicitly disclose shaping and policing traffic flows or selecting the forwarding mode and path according to aggregation path information.

So discloses a method for selecting a label-switching path from a set of label-switching paths based on the QoS-type (So: Col. 3, line 65 through Col. 4, line 11). The method is carried out in an intelligent and dynamic network resource traffic engineering mechanism (So: Col. 6, lines 18-28) disposed in a router (So: Col. 6, lines 29-33; router and switch are used interchangeably throughout the disclosure. Figures 4A-B are core label switches.). So discloses **shaping and policing the service traffic flows according to the corresponding bandwidth requirement** (So: Col. 12, lines 3-18; scheduler controlling the buffers of the switch enables traffic shaping. Traffic parameters for shaping and policing include QoS and bandwidth requirements.). So also

discloses **selecting the forwarding mode and path of the service traffic flows according to the corresponding outgoing aggregation path information** (So: Col. 6, lines 18-28; LSPs are selected based on QoS and current link or path utilization characteristics. Figure 2B (1st packet) and Col. 7, lines 52-61; The label field designates the path of the flow for packets containing protocol type and source and destination addresses.).

Morford, Qing, and So discloses methods for guaranteeing quality of service in systems utilizing label-switching paths and multiprotocol label-switching technologies. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Morford and Qing to incorporate shaping and policing traffic along with selecting a path as disclosed by So to provide a means for load balancing (So: Col. 3, lines 56-61) which in turn, reduces delay and network congestion (So: 51-55).

Regarding Claim 20, Morford, in view of Qing, and further in view of So discloses **the method according to claim 1, wherein the core network is an IP network** (Morford: Figure 1).

Regarding Claim 22, Morford, in view of Qing, and further in view of So discloses **the apparatus according to claim 17, wherein the service traffic flow information of a service traffic flow is obtained directly from the service control equipment or from the service control equipment through a resource control equipment, the resource control equipment distributing**

route and resource according to QoS requirements of the service traffic flow (Morford: Col. 3, lines 61-67 and Col. 4, lines 1-3. RSVP is used for the paths with QoS restraints.).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN ELLIOTT whose telephone number is (571)270-7163. The examiner can normally be reached on Monday thru Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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